

Serial No. 09/536,020

- 3 -

Art Unit: 2633

In the claims:

1. (Currently amended) A label switching routing method for multi-protocol label switching (MPLS) optical communications network, comprising:

attaching a wavelength to each said label,

establishing a datapath as a sequence of locally wavelength labels between a source and a sink in said optical communications network, wherein each wavelength label includes a wavelength field indicative of an optical wavelength used for communication in a corresponding portion of the sequence.

converting a first wavelength to a second wavelength and forwarding the traffic to said sink according to said datapath,

updating the sequence of wavelength labels to replace a first wavelength label corresponding to the first wavelength with a second wavelength label corresponding to a second wavelength; and

transmitting said second wavelength label to said source said label mapped with said second wavelength.

2. (original) A method as claimed in claim 1, further comprising attaching timeslots to said label so as to form a composite label having a wavelength portion and timeslot portion.

3. (original) A method as claimed in claim 2, wherein said timeslots have variable size.

4. (original) A method as claimed in claim 2, further comprising splitting said label received at an incoming interface into two outgoing composite labels.

5. (original) A method as claimed in claim 2, further comprising combining two incoming composite labels into one outgoing composite label.

Serial No. 09/536,020

- 4 -

Art Unit: 2633

6. (original) A method as claimed in claim 1, wherein said step of establishing a datapath is controlled by said multi-protocol label switching (MPLS) protocol.

7. (original) The routing protocol of claim 6, further including a constrained routing label distribution protocol (CR-LDP) for hierarchically controlling time, frequency, and statistically multiplexed paths and forming said composite layer in a single session.

8. (currently amended) An optical/time cross-connect (OTXC) for providing wavelength to wavelength conversion in a multi-protocol label switching (MPLS) optical communications network, comprising:

means for attaching a wavelength to said providing a label having a wavelength field for indicating an optical wavelength used in a communication path of the OTXC;

means for converting a first wavelength associated with an incoming signal of the OTXC into a second wavelength associated with an outgoing signal of the OTXC;

means for updating a label associated with a communication path of the incoming signal to provide the value of the second wavelength in the wavelength field of the label mapping said label based on said second wavelength; and

means for forwarding the updated label to the source said label mapped with said second wavelength.

9. (original) The optical/time cross-connect of claim 8, wherein said means for converting are controlled by said multi-protocol label switching (MPLS) protocol.

10. (original) The optical/time cross-connect of claim 8, further including multiplexing means for providing statistical multiplexing, frequency division multiplexing, and time division multiplexing under the control of said MPLS protocol.

11. (Currently amended) The optical/time cross-connect of claim 8, wherein said OTXC further ~~comprising~~ comprises means for assigning timeslots for a wavelength flowing back to the source whenever said wavelength arrives with an attached timeslot.

Serial No. 09/536,020

- 5 -

Art Unit: 2633

12. (original) The optical/time cross-connect of claim 11, wherein said timeslots have a variable size in accordance with the speed of the optical carriers connected to a signaling interface of said OTXC, and the label requested at said signaling interface.

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Concl.

13. (New) A network communication system comprising a source and sink node coupled by an intermediate node, the network communications system comprising:

means for defining a datapath between the source and sink nodes, the datapath being represented as a sequence of labels, each label identifying a path between a pair of nodes in the datapath, and including a wavelength field, the wavelength field for storing a value of an optical wavelength used to communicate between the pair of nodes.